Louisiana Kids and Families Integrated Data System (LAKIDS)

LAKIDS Resource Requirements

May 29, 2001

Table of Contents

1 Introduction

The Resource Requirements Document is the first of two documents that discuss the physical hardware resources needed to operate the Louisiana Kids and Families Integrated Data System (LAKIDS), a Statewide Automated Child Welfare Information System (SACWIS). The second document in conjunction with the Resource Requirements is the Capacity Analysis Document. The Resource Requirements Document specifically investigates what causes the application to use the hardware components allowing the system to function. To accomplish the investigation process, user and data profiles have been developed. By profiling the user and the data, the amount of information the application will be able to process and the frequency with which it is processed and transmitted can be understood. These profiles become input to the Capacity Analysis Document. The network can then be modeled resulting in computer equipment having an industry classification designation. This designation describes the processing capability needed to support the database access and application functionality delivery.

It is important to note that the assumptions, expectations, and calculated values contained in this document are estimates. They represent information known at the time of the writing of this document and do not include efficiencies that may be accrued from business process re-engineering or re-organization of work responsibilities. Many of the calculations presented here should be reassessed and re-determined prior to actual implementation when more exact data can be gathered.

1.1 Background

The Resource Requirements document addresses in full or in part the following Request for Proposal (RFP) sections:

Conduct Capacity Analysis:
The Contractor must perform a capacity analysis of the OCS platform environment. The purpose for conducting the capacity analysis is for the enhancement of the OCS platform environment and overall improvement in the performance of the Louisiana SACWIS.

Prepare Resource Requirements Document:
The Contractor must prepare a resource requirements document detailing CPU, data storage, print, memory and time estimates for transaction and batch processes required for test, conversion and development of SACWIS.

Prepare Capacity Analysis Document:
The Contractor's methodology, findings, and recommendations from the capacity analysis and a summary of the resource requirements document must be contained in a capacity analysis document. This analysis must be developed and conducted following the development of the Louisiana SACWIS system requirements document.

This analysis must be maintained and refined during the production of the detailed system design.

Both the Capacity Analysis and Resource Requirements portions of the RFP were included since the documents cannot be evaluated without coordination. Several documents developed for the LAKIDS project are used as a basis for certain assessments in this document. They are:

- System Requirements Definition (SRD)
- System Architecture Specification (SAS)

The System Requirements Definition Document (SRD) has provided significant information regarding the LAKIDS application design including information about the user community and their anticipated interactions with the application. Specifically, the Actor/Role list provided information regarding end users and their roles and descriptions of the proposed interactions. Additionally, the Business Scenarios provided a "day in the life" view of OCS workers.

The System Architecture Specification (SAS), which was developed earlier in the project, defined an ultra-thin web-based system architecture for LAKIDS. Additionally, it postponed the selection of specific hardware and software until the implementation phase. Because specific hardware and software have not been specified, the Resource Requirements and Capacity Analysis will identify CPU and memory requirements in terms of hardware vendor system classifications for equipment capable of meeting LAKIDS capacity needs. These would normally be sized by performing a function point analysis. A chart has been included to perform this type of analysis following completion of the Conceptual System Design.

Continuing updates to this document, the Capacity Analysis and the System Architecture Specification can be found in the LAKIDS Project Work Plan.

1.2 Intended Audience

The intended audience for the Resource Requirements is:

- OCS Management staff, particularly Information Technology Division,
- LAKIDS Steering Committee,
- DSS Information Technology staff,
- Federal Reviewers and Auditors (ACF),
- Quality Assurance vendor,
- Software designers and developers,
- DSS Operations and Maintenance staff (for post deployment), and
- Potential Phase II vendors.

1.3 Purpose

The purpose of the document is to provide the information used in the Capacity Analysis Document and to ensure the LAKIDS infrastructure servers and network equipment can provide reasonable response time when a user requests the processing of a LAKIDS application function.

1.4 Methodology

The methodology used to assess the resource requirements associated with LAKIDS was structured to characterize the LAKIDS users' workload. Once the workload characterization is complete, the resource requirements associated with the workload will be defined. Finally, the Capacity Analysis Document addresses the specific hardware that will be available to meet the resource requirements outlined in this document.

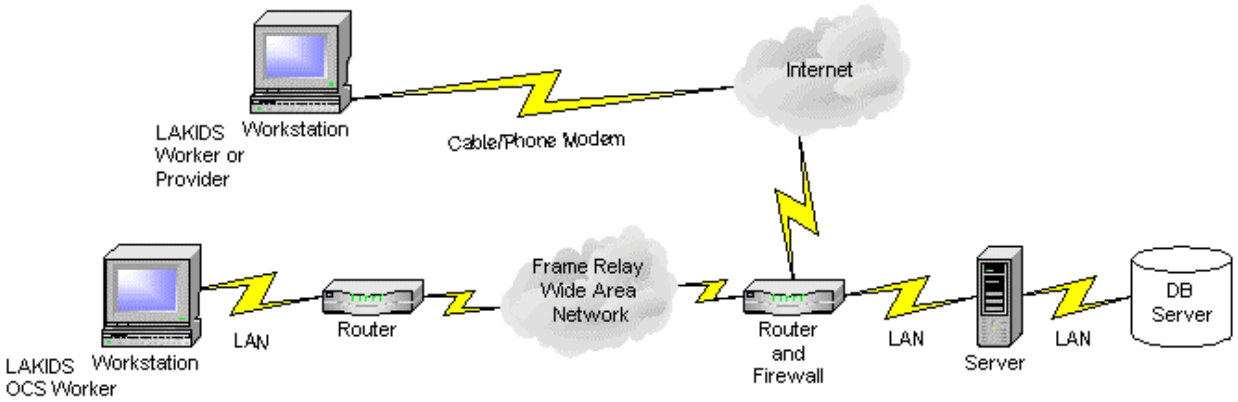

Figure 1.4-1

Figure 1.4-1 displays a simplified version of users' access path to the LAKIDS application and the data. The Resource Requirements Document focuses on understanding what level of processing capability will be required to provide a reasonable response time. In order to understand the processing capability, different components of the above figure are profiled. Profiling is a method of breaking the system down into its most basic components.

The steps taken to profile the system are outlined as follow:

1) Profile the Users
   a) Create manageable user groups
   b) Count the number of users in each group
   c) Develop basic transaction types
   d) Estimate the number of transactions for each user group
   e) Estimate the transaction size
   f) Estimate the resource requirements for transmitting data

2) Profile the Application
   a) Estimate the CPU and memory requirements for the web and application server
   b) Estimate the resource requirements for printing

3) Profile the Data
   a) Estimate the database size
   b) Estimate the resource requirements to store data

1.4.1 Profile the Users

Profiling creates numerical representations enabling the LAKIDS application to be modeled in the Capacity Analysis Document. The numerical representations are a count of bytes that will be read or written to the database as well as moved across the network from the database server to the client. Since LAKIDS will be an ultra-thin client server application, the number of bytes moving across the network will be increased to account for the presentation software to be delivered with the data. The amount of data will be multiplied by the number of times a particular type of user interacts with the application. This processing rate is the mechanism that generates system load. Examination of the peak or maximum loads experienced by the system will ensure response time can be maintained for the LAKIDS user population. Therefore, this document will calculate the average number of bytes of software, data transmitted to or from the user, and the frequency of transmitted data. The information will be tabularized into a User Profile Table. This table represents a summation of how OCS users will interact with the LAKIDS system functions (i.e., Intake, Case Management, Provider Maintenance, etc.) as identified in the SRD. Three components comprise the static information in the table:

- User Counts for one or more Job Categories
- Frequency or Rate application functions operated by the users
- Transaction Size

This information has been gathered from the current use statistics of existing systems (see Appendix 5.3 Statistical Reports List) or estimated use by the Design Team members. To improve the usability and readability for a particular user profile job, categories are generally grouped into higher-level logical categories. This enables discussion about office types and organizational breakdowns so that estimates can be workable and concise enough for developers to visualize and explain. The User Profile Table will be used as input for load estimating on the individual hardware components that make up the ultra-thin topology.

1.4.2 Profile the Application

Application profiling is normally used to determine the CPU and memory requirements for the web and application server. The profiling process for applications involves the definition of function points for each application function. Each point amount equates to a specific amount of central processing unit instructions and system memory needed to

execute the application function. Unfortunately, the function point equivalents have not been defined for web-based application processing. In addition, the individual application functions have not been fully designed and expected completion is scheduled after the conclusion of the Detailed Design Phase. The vendor community has been polled for suggested equipment classifications to use for the expected user population and the total transaction frequency. In addition, the State of Illinois SACWIS Production Hardware Recommendation was review for a comparative analysis (see Appendix 5.5).

This section also addresses the application requirements for printing. The application is being designed with a minimal need for printing. Users will have the ability to print to any network printer defined locally at their desktop, which is the desired mode of operation for end users. This includes high-volume or specialty printers (i.e., color). For both standard reports generated on demand as well as scheduled reports, printing to a printer at the users location should be used. The user requests access to the report and the output will be delivered to their workstation where it can be sent to any network printer or locally from their desktop. The ability to download these outputs should eliminate most of the need for printing. However, this will not eliminate user dependency on printed material. Because scheduled report output will be stored within the database, the database size will be increased accordingly. Large-scale printing will also be supported through network printer drivers installed in the computer generating the report.

1.4.3 Profile the Data

Data profiling will be generated for each logical entity designed as part of the High-Level Object Modeling process. Existing systems and estimates for newly designed functions comprise the static information used to build this profile. This information is used by the Capacity Analysis Document to estimate the database space requirements and database server classification size.

2 Profiling LAKIDS Users

Being the originating point for many of the transaction requests, the workload characteristics of the LAKIDS users help define the bulk of the resource requirements. Therefore, accurate profiling of LAKIDS users and their data requirements is essential for a successful resource requirements analysis. This section focuses on the resource requirements that will be imposed on the application by the OCS User Community and the external users (e.g., providers) who will be accessing the application through the web.

2.1 Profiling OCS User Community

To profile the OCS user community, certain characteristics must be understood. Who are the users? What connects or joins their work efforts and what separates their work efforts? How often do they perform their specific work efforts? To answer these questions, the OCS workforce was associated with all job functions within the LAKIDS application (see Appendix 5.2 Worker Types from the Actor/Role Models in the SRD). The numerous worker types listed can be consolidated into four categories:

Acronym	Meaning	Worker Count
ASP	Administrative and Support Personnel	687
FCW	Field Case Worker	969
FFLS	Field Front Line Supervisor	206
SOP	State Office Personnel	171
	Total Workers	2033

Table 2.1-1 OCS User Community

Field Case Workers (FCW)

Case Workers include the workers from Intake, Investigation, Foster Care, Family Services, Adoption, and Home Development. These workers deal with the cases on a regular basis. They are workers responsible for the specific clients of OCS. These workers are distinguished by their being assigned a number of "individual" cases and being responsible for those specific cases. The exact number of cases varies over time and specific type of worker.

Field Front Line Supervisors (FFLS)

Field Front Line Supervisors manage Field Case Workers (above) and their work. They are involved with the Case Workers and their assigned cases by supervising the work of the Case Workers, and also by assisting the Case Workers with decisions involving the cases.

State Office Personnel (SOP)

All State Office employees that are involved with the administration of the OCS programs (such as Adoption, Family Services, Foster Care). Additionally, they are occasionally involved in specific cases. These workers are located at the State/Central Office.

Administrative and Support Personnel (ASP)

These managerial, administrative and support employees are involved with the running of the programs from a pragmatic, financial, interface and general administrative view.

These consolidated categories are representative of how the work is actually accomplished. This is particularly true in smaller OCS offices where a single worker has numerous job assignments. Large OCS offices have some degree of consolidation but more specialization does exist. The profile includes these specialized workers by simply increasing the count within the broad category. This consolidation of job categories has certain advantages. Mainly, it reduces the complexity for calculation of transaction frequency of how often workers perform an application function to a more manageable state. By grouping workers into broad categories, the roles that are seldom played or have peak times of activity are leveled within the table. This provides a mechanism for identifying a peak steady load. A steady load is an important benchmark because the desired output from modeling software estimates the maximum expected continuous network traffic.

The same philosophy is carried forward to the application functions. Appendix 5.1 LAKIDS Transactions from the SRD lists the many possible application functions. Again, many of these functions are infrequently executed or have peaks in their use. To level the load, the functions are grouped into the following categories:

- Search
- Read
- Create
- Update

These functional categorizations take each application process and breaking it down into its basic operations reducing the calculation complexity and leveling the load.

The final two data points needed for each worker type and each function are: (1) the daily count of executions of the functions for each worker type and (2) the amount of data and software to be moved or transmitted from the server to the client and then returned from the client back to the server. The calculation of the number of cases each Field Case Worker is responsible for was developed from the Staff Resource Need and Availability Report (TIM9040) for the month of March 2001. LAKIDS project staff estimated the number of accesses per case.

Field Case Workers on the average manage 20 cases. Approximately five application functions will be executed for each case yielding a transaction count of 100 per day, which equals 25 when evenly distributed across all transaction types.

Administrative Support Personnel, in their support role, will access the application more often than any other worker category. At six minutes per application transaction, it would

be difficult to perform transactions more quickly and still accomplish any other interactions with supervisors, peers or clients whether in person, by phone or in e-mail. This yields a transaction count of 80 per day, which equals 20 when evenly distributed across all transaction types.

Field Front Line Supervisors on average manage 4.7 caseworkers whose 20 cases will be accessed twice per day per case. This yields a transaction count of 188 per day, which equals 47 when evenly distributed across all transaction types.

State Program Workers performing research and oversight of OCS functions can only be estimated because very little statistical information is currently maintained about job functions, and many functions are still paper based. Since the SPW worker type represents the smallest grouping of the workforce, the three other worker types will offset their impact even if a reasonable estimated transaction count is used. Therefore, the estimated transaction count selected for this worker type is 4 per hour, yielding 32 per day, which equals 8 when evenly distributed across all transaction types.

Excluded from the transaction counts are accesses to the Data Warehouse. Because the design of the warehouse will not be completed until after the Detailed Design Phase, it is unknown whether access to the warehouse will be provided through the LAKIDS application and database servers or some other access path. Therefore, estimates for these cannot be developed and included until the conclusion of the Data Warehouse Design.

The amount of data and software contained in each transaction has been established from other AMS Social Services web-based applications. Using network detection software (GA Sniffer), the network packets were logged and recompiled to identify the size in bytes of the information being transmitted to and from the client and server. This investigation produced an average client or server transaction size of 90Kb. In comparing LAKIDS to the investigated application, one difference was identified. The number of textual elements and form elements is greater in LAKIDS. Therefore, 10Kb was added to the transaction size creating 100Kb client and server transactions for LAKIDS. Excluded from the transaction size is the transport of image files. These have been excluded because the design effort has not yet identified the application functions where the image files would be implemented or how often the capability to store and display images would be employed for each function.

2.2 Profiling External Users

Since LAKIDS will also act as a mechanism for existing providers to inquire regarding the status of payments, licenses and clients, there will be added transactions to support this user community. While the provider population is very large, very few providers have taken advantage of existing support mechanisms such as the voice response system (IVARS). The Call Summary Reports for system accesses each month during the current year has been less than 250 calls for any single day. Even if each provider made four LAKIDS transactions in place of these phone calls, the overall impact would

not cause any additional system load. In an effort to look towards the future when more providers may access LAKIDS, a multiplier of four was applied to the call count with eight transactions per user per day allocated to this user category in the User Profile Table.

Although provider users were included in calculating the required resources to be supported, these providers will access the LAKIDS application through the Internet with their respective service provider utilizing their modem or other connectivity equipment that is not under the control of OCS. It is impossible to estimate their response times due to the inability to control the communications to these users.

2.3 User Profile Table

The User Profile Table, by organizing the eight characteristics (four functions and four user types, see Section 1.4.1, Profiling the Users), enables the calculation of the user transaction frequency. As each application function is executed, the client and the server process a transaction. A transaction is defined as the data and software processed by the server and transmitted to the client. In some cases, that same data and software stream, with modifications processed by the client, is transmitted back to the server. The User Profile Table final calculations and summations are used directly for the determination of the amount or size of equipment resources for both network transport and web and application and database servers.

Worker Type	Classification of end user.
Transactions	An end user's execution of an LAKIDS application function.
Transaction Count	Count of Transactions performed by the Worker Type per day.
Worker Count	Count of workers in OCS for the Worker Type.
Daily Transaction Total	Product of the Transaction Count performed by the Count of the Worker Type in a day.
Data to Client	Amount of data transmitted by the client workstation per day for a Transaction by a Worker Type.
Data from Client	Amount of data transmitted from the client to the server per day for a Transaction by a Worker Type.
Data Transmitted Daily	Total data transmitted to and from the client per day for a Transaction by a Worker Type.
Total	Total data transmitted to and from the client per day for all Transactions by all Worker Types.
Kb per Second	Total data transmitted to and from the client per second for all Transactions by all Worker Types.

Table 2.3-1 Elements of the User Profile Table

The User Profile Table identifies 14 terra-bytes of data and software to be processed by the system each day, almost half a mega-byte every second. Remember this represents a peak level load for the entire OCS user population, which will not be sustained for an entire day. In general, the largest segment of the population, the Case Workers, is performing fieldwork for as much as 50 percent of their workday. It also does not represent the sub-second spikes in processing which will occur in ultra-thin

architectures. Peak level loads should be expected during the normal most active workday periods of 10:00 a.m. to 12:00 p.m. and 1:00 p.m. to 3:00 p.m.

Transactions	Transaction Count	Worker Count	Daily Transaction Total	Data To Client (Kb)	Data From Client (Kb)	Data Transmitted Daily (Kb)
Worker Type: Administrative and Support Personnel						
Search	20	687	13,740	1,374,000	-0-	1,374,000
Read	20	687	13,740	1,374,000	-0-	1,374,000
Create	20	687	13,740	-0-	1,374,000	1,374,000
Update	20	687	13,740	1,374,000	1,374,000	2,748,000
Worker Type: Field Case Worker						
Search	25	969	24,225	2,422,500	-0-	2,422,500
Read	25	969	24,225	2,422,500	-0-	2,422,500
Create	25	969	24,225	-0-	2,422,500	2,422,500
Update	25	969	24,225	2,422,500	2,422,500	4,845,000
Worker Type: Field Front Line Supervisor						
Search	47	206	9,682	968,200	-0-	968,200
Read	47	206	9,682	968,200	-0-	968,200
Create	47	206	9,682	-0-	968,200	968,200
Update	47	206	9,682	968,200	968,200	1,936,400
Worker Type: State Office Personnel						
Search	8	171	1368	136,800	-0-	136,800
Read	8	171	1368	136,800	-0-	136,800
Create	8	171	1368	-0-	136,800	136,800
Update	8	171	1368	136,800	136,800	273,600
Worker Type: External User						
Search	2	1000	2000	200,000	-0-	200,000
Read	2	1000	2000	200,000	-0-	200,000
Create	2	1000	2000	-0-	200,000	200,000
Update	2	1000	2000	200,000	200,000	400,000
Total	196	3033	204,060	15,304,500	10,203,000	25,507,500
						886 Kb / Second

Table 2.3-2 User Profile Table

Worker transaction frequency is an average amount of daily accesses across all users of the LAKIDS application. This means that an individual worker may use the system more often in one day and less in another. It is not meant to be any type of limiting number, but as a level load placed system resources by the entire OCS workforce.

Worker Type	Count	Frequency	Total
Field Case Worker	969	100	96,900
Administrative and Support Personnel	687	80	54.960
Field Front Line Supervisor	206	188	38,728
State Office Personnel	171	32	5,472
External Users	1000	8	8000
Totals	3033		**204,060**
		Transactions / User / Day	**67.3**

Table 2.3-3 Estimates Transaction Frequency per Worker

From the total daily transactions, the concurrency rate can also be identified. The concurrency rate is the number of transactions that are being processed simultaneously. Each second of the eight hour day, 7.1 new transactions will begin processing. If transactions complete every three seconds, the concurrency rate would be 21. If completion requires five seconds the rate increases to 30. This rate affects the buffering that must be defined to the servers to perform thread management. AMS experience with other SACWIS installations has shown a thread management buffering of 25 concurrent transactions has been sufficient to support the user population, allowing enough extra buffers for spikes to occur.

3 Profiling LAKIDS Data

Profiling LAKIDS data will help determine the specifications of the database server needed to implements LAKIDS. We will first analyze the data stored in the current OCS systems and then make an estimate on the LAKIDS resource requirements once the design currently in progress is implemented.

3.1 Analysis of Current OCS Systems

Profiling OCS data requires an understanding of existing PC and mainframe based data sources and estimates of the paper-based processes to be replaced with LAKIDS application functionality. How and where will these data sources be input to the LAKIDS data model? What disk space is needed to contain the database?

To start, the existing systems that will be analyzed are listed below:

- TIPS
- RMS
- Worker Training
- QATS
- Community Resource Centers
- Adoption Reunion Registry
- Adoption Sealed Records
- Contract Services Data System

For each system listed, the types and counts of business entities are listed below:

3.1.1 TIPS

The business entities included in the table below represent the “base” entities (in terms of both significance and size) of a SACWIS system and collectively depict, with reasonable precision, the “universe” which the system tries to capture.

Data Description	Total Existing Entities	New Entities per Year	Percentage Growth
CI Programs	197,811[5]	22,425[3]	11.34%
FC Programs	46,474[5]	7,277[3]	15.66%
FS Programs	55,863[5]	3,381[3]	6.05%
ICPC Cases	6,500[6]	1,700[6]	26.15%
Adoption Cases	11,851[5]	4,573[3]	38.59%
Cases – All Programs	318,499	39,356	12.36%
Adoption Petitions	28,939[1]	1,750[3]	6.05%
Case Events	1,791,281[1]	84,719[5]	4.73%
Court Info	54,301[1]	2,475[5]	5.56%
Eligibility	634,160[1]	25,936[5]	4.09%
Payment Detail	6,253,666[1]	416,911[7]	6.67%
Service Agreements	309,403[1]	20,627[7]	6.67%
Service Authorizations	1,264,193[1]	57,731[5]	4.67%
Contracts	4000[4]	600[8]	15.00%
Providers	96,177[1]	6,412[7]	6.67%
Home Development Homes	23,137[1]	624[2 (52*12)]	2.70%
Clients	552,193[1]	36,813[7]	6.67%
Addresses	2,208,772[1]	147,251[7]	6.67%
Phone Numbers	1,104,386[1]	73,626[7]	6.67%
Workers	6,025[1]	402[7]	6.67%

Table 3.1.1-1 TIPS Entity Counts by Type of Information

1. TIPS Number of Entities per File (TITRIJ) dated 4/27/2001
2. Home Development Statistics by Region (TJM0141) dated 3/2001
3. Assistant Secretary's Report (TIM1300R1) dated 4/2001
4. Provided by State Office Contracts Unit
5. Special Reports from TIPS Data Warehouse file download
6. Provided by ICPC Unit
7. Averaged from the total years of data collection in TIPS (15 years)
8. State Project Team estimate

3.1.2 RMS

The RMS system currently has 9,239 rows. The RMS Unit provided this information.

3.1.3 Worker Training

Data Description	Entity Counts
TMS (Training Database)	267,834
Training Classes	119

Table 3.1.3-1 Worker Training System Entity Counts by Information Type

The State Office Training Unit provided this information.

3.1.4 QATS

Data Description	Entity Counts
TIPS/AFCARS Reviews	5,652
Public Law Reviews	33,162
CPI Reviews	8,798
Foster Care Reviews	15,759
Family Services Reviews	5782
Total Reviews	69,153

Table 3.1.4-1 Quality Assurance System Entity Counts by Review Type

The Quality Assurance Unit provided this information.

3.1.5 Community Resource Centers (CRC)

The system contains 4500 provider records. The OCS Information Management Unit reviewed the LSU download report to provide this information.

3.1.6 Adoption Reunion Registry

The Adoption Reunion Registry is a FoxPro based system with 7,500 clients. The Adoption Unit provided this information.

3.1.7 Adoption Sealed Records

Adoption Sealed Records is an Oracle database with 33,000 sealed adoption records. The Adoption Unit provided this information.

3.1.8 Contract Services Data System (CSDS)

CSDS has 500 providers of which less than one percent is duplicated. The State Office Contracts Unit provided this information.

3.2 Estimating LAKIDS Data Resource Requirements

For data profiling two methods have been used. From experience with other SACWIS applications, AMS has developed a rule of thumb method. The tables are grouped by their generally expected size and assigned a total space allocation based on that size. The general table sizes and space estimates are:

Table Size	Number of Table Rows	Space Estimate
Large Table	1,000,000+	500Mb
Medium Table	100,000+	100Mb

Small Table	100,000	10Mb
Code Tables	Less Than 5,000	500Kb

Table 3.2-1 Descriptions of Table Sizes

Based on the present logical data model, the estimated number of tables to support the application is two hundred. The percentage of tables in each category is:

Table Size	% Tables for the Size	# Tables for the Size	Total Size
Large	10%	20	10Gb
Medium	7.5%	15	1.5Gb
Code	15%	30	1.5Mb
Small	67.5%	135	1.4Gb
Total	100%	200	13Gb

Table 3.2.1-2 Calculation of Total Size

While this method is a gross over-simplification of database size estimating, it does provide a comparison that will identify when amounts generated by a detailed analysis may be flawed.

The second method is the more detailed estimate based on known amounts of existing data and an estimated growth rate and overhead amount.

The following table contains estimates of the disk space required to build and load the initial data for LAKIDS implementation with additional space for yearly growth. Each entity is described in the LAKIDS Logical Data Model. Because the entities represent the logical data model and not the physical data model, minor differences will exist in the final database form. This should have no detrimental effect on the calculations made here. For growth purposes, a factor of twenty percent was used as an additive amount on each entity. A ten percent factor was added for the database management system's overhead to manage variable length and binary large object (BLOB) data elements in addition to internal row level indexing capabilities. There are many tables in LAKIDS that do not currently exist in TIPS or other OCS systems. In order to complete a sizing on these tables, members of the Design Team were queried to get estimates of the number of rows. These estimates were separated into three groups: Small, Medium and Large, which conform to the above matrix of assumptions. In order to estimate the size of the index space, an analysis of other SACWIS systems (Rhode Island and New Mexico) was completed to determine the size of index space for Code, Small, Medium and Large tables. The following table summarizes the results:

Size of Table	Percent of Total Space Allocated to Indexes
Large	50%
Medium	50%
Small	40%
Code	10%

Table 3.2.1-3 Space Allocations to Indexes

As tables get larger in size, more indexes are added to achieve better data access performance.

The values listed here will be re-estimated following the Conceptual System Design Phase when the physical data model will be complete.

Entity Name	Row Size	Row Count	Disk Space (Mb)	Index Count	Index Size	Disk Space (Mb)	Total Disk Space (Mb)
AccountActivity		Small	3			2	5
ActivityNoteParticipant		Medium	9			6	15
ActivityNotes		Medium	50			50	100
Address		2,328,374	500			500	1000
AddressDanger		Small	0.09			0.06	0.15
Adoption		28,939	6			4	10
AdoptionPetition		28,939	6			4	10
AdoptionSubsidy		Small	0.06			0.04	0.1
Advancement		Small	0.06			0.04	0.1
Agreement		Small	3			2	5
Alias		Small	0.9			0.6	1.5
Allocations		Small	0.06			0.04	0.1
Approval		Large	500			500	1000
ApprovalLevel		Small	0			0	Negligible
ArchiveInfo		Large	250			250	500
AssessmentEvent		Small	8			2	10
AssessmentQuestions		Large	250			250	500
Asset		Small	8			2	10
Assignment		Large	150			100	250
Attachments		Small	0.5			0.5	1
Attendees		Small	0.5			0.5	1
Audit		Small	0.5			0.5	1
Auditing		Large	375			375	750
Banking		Small	0.5			0.5	1
Bodies		Small	9			6	15
Budget		Small	0.9			0.6	1.5
CPI		831,000	200			200	400
Cases		1,031,634	300			200	500
Certification		Small	0.6			0.4	1
CertificationForAdoption		Small	0.06			0.04	0.1
Characteristics		Small	0.9			0.6	1.5
Checklist		Medium	50			50	100
ChecklistItems		Medium	100			100	200
Clearance		Small	6			4	10
ClientContribution		Small	1.2			0.8	2
ClientDanger		Small	6			4	10
Clients		552,193	350			350	700
ClosingHistory		Small	0.06			0.04	0.1
CollateralContacts		Medium	50			50	100
Complaints		Small	9			6	15
ContractAdministration		Small	0.6			0.4	1
ContractMontoring		Small	0.6			0.4	1
ContractServices		Medium	50			50	100
Contracts		Small	8			2	0.15

Entity Name	Row Size	Row Count	Disk Space (Mb)	Index Count	Index Size	Disk Space (Mb)	Total Disk Space (Mb)
CostAllocation		Small	0.06			0.04	0.1
CourtOutcome		7,271	6			4	10
CourtOutcomeConditions		Small	6			4	10
Disbursements		Large	250			250	500
Education		Small	1.2			0.8	2
Eligibility		630,734	30			20	50
EligibilityChangeHistory		Large	250			250	500
EmailAddress		Small	0.6			0.4	1
EventParticipant		Large	250			250	500
Events		1,766,726	250			250	500
Expenditures		Large	1000			1000	2000
ExpenseBudgetLines		500	0			0	Negligible
FamilyServices		Small	6			4	10
Financing		25	0			0	Negligible
Forms		Small	0			0	Negligible
FosterCare		Large	250			250	500
FundingSources		4	0			0	Negligible
GrantAward		50	0			0	Negligible
HomeAssessment		Small	1.2			0.8	2
HomeAssessment Questions		Small	4.8			3.2	8
HomeProvider		Small	0.6			0.4	1
ICPC		6,500	8			2	10
ICPCReceiving		Small	0.06			0.04	0.1
ICPCSending		Small	0.06			0.04	0.1
InKindMatch		Small	6			4	10
IncomeEmployment		Small	6			4	10
IntakeAssessments		831,000	200			200	400
IntakeDecision		831,000	200			200	400
IntakeEvent		Small	0.6			0.4	1
IntakeParticipant		Large	200			100	300
Investigation		413,400	120			80	200
InvestigationDecision		Small	0.6			0.4	1
InvestigationParticipant		Medium	50			50	100
LegalAction		54,301	6			4	10
LegalDocument		Small	6			4	10
LegalEvent		7,271	4			1	5
LegalNotification		Small	6			4	10
LegalParticipant		Small	6			4	10
LocationHistory		Small	0.9			0.6	1.5
Marital		Small	0			0	Negligible
Matching		Small	6			4	10
Medical		Small	9			1	10
Meeting		Small	7			3	10
OAFiles		Large	500			500	1000
OrientationLetters		Small	0.12			0.08	0.2
Outcomes		Large	250			250	500
ParentAgency		Small	6			4	10
Parish		62	0			0	Negligible
ParishesServed		62	0			0	Negligible

Entity Name	Row Size	Row Count	Disk Space (Mb)	Index Count	Index Size	Disk Space (Mb)	Total Disk Space (Mb)
Party		648,370	80			20	100
Payment		6,253,666	600			400	1000
PerformanceIndicators		Small	0.6			0.4	1
Phone		2,328,374	250			250	500
Placement		Small	0.6			0.4	1
PlanEvent		Medium	50			50	100
PlanItems		Large	250			250	500
PlanParticipant		Medium	50			50	100
PrivateProvider		Small	0.06			0.04	0.1
ProgramAssignment		5	0			0	Negligible
ProspectiveProvider		Small	0.06			0.04	0.1
Provider		96,177	60			30	90
ProviderRate		Small	0.06			0.04	0.1
ProviderServices		Large	400			100	500
Purpose		Small	9			6	15
Questions		12	0			0	Negligible
RMS		9,239	8			2	10
Reason		Small	0.6			0.4	1
Recruitment		Small	0.06			0.04	0.1
RecruitmentNeeds		Small	0.06			0.04	0.1
RecruitmentPlan		Small	0.06			0.04	0.1
Referral		25,500	12			8	20
Region		10	0			0	Negligible
RegionalBudgetPlan		Small	0.15			0.10	0.25
Relationship		Small	6			4	10
Relationships		Large	250			250	500
ReportingCategories		100	0			0	Negligible
RequestReport		Small	0			0	Negligible
RiskAssessment		Medium	50			50	100
Role		Large	250			250	500
SafetyAssessment		Medium	9			1	10
School		Small	4			1	5
Security		Small	0.09			0.06	0.15
Service		Small	0.06			0.04	0.1
ServiceDelivery		Medium	50			50	100
ServiceDeliveryParticipant		Medium	50			50	100
ServiceIntake (VSR)		Medium	50			50	100
ServiceRate		324	0			0	Negligible
ServicesToParents		Small	6			4	10
Skills		Small	0			0	Negligible
SpecialTerms		Small	0.6			0.4	1
State		1	0			0	Negligible
StatusHistory		Small	0.6			0.4	1
Tickler		Small	30			20	50
Training		267,834	60			40	100
TrainingClass		119	0			0	Negligible
TrainingSessions		Medium	0			0	Negligible
Worker		6,025	6			4	10
WorkerPosition		1,957	0			0	Negligible
WorkerTraining		1,957	0.9			0.6	1.5

Entity Name	Row Size	Row Count	Disk Space (Mb)	Index Count	Index Size	Disk Space (Mb)	Total Disk Space (Mb)
YoungAdultProgram		Small	6			4	10
Totals			9,769			8,730	18,499.75

Table 3.2.1-4 Database Size by Information Type

4 Summary of LAKIDS Resource Requirements

This document followed the methodology outlined in Section 1.4 and is an attempt to attain a clear understanding of the LAKIDS Resource Requirements. The focus of the document was to extract the resource requirements surrounding the future users of LAKIDS and estimate the size of the database that will be required to support LAKIDS application functions. This document should be read in conjunction with the Capacity Analysis Document to develop a clear understanding of how the Resource Requirements that are outlined in this document will be met when LAKIDS is implemented.

5 Appendices

5.1 LAKIDS Transactions from the SRD

1. Conduct Intake
2. Initiate ICPC
3. Receive a Request for ICPC
4. Track Complaints and Inquiry
5. Conduct Investigation
6. Conduct Pilot Assessment
7. Conduct Out
8. Conduct Intake Assessments
9. Conduct Investigation Assessments
10. Conduct Foster Care and Family Services Assessment
11. Record Orders and Hearing Information
12. Provide Services in Family Services
13. Provide Services in Foster Care
14. Provide Services in Adoption
15. Provide Services in YAP
16. Place a Child with a Relative
17. Place a Child in a Foster Home
18. Place a Child in a RTF
19. Place a Child in an Other Facility
20. Change Goal to Adoption
21. Conduct Adoptive Family Search
22. Record Adoption Agreement
23. Record Adoption Subsidy Request Pre Finalization
24. Record Adoption Subsidy Request Post Finalization
25. Maintain Voluntary Adoption Reunion Registry
26. Establish OCS Certified
27. Establish OCS Child Specific Certified Foster Home
28. Establish OCS Subsidized Foster Homes
29. Establish Foster Care Level of Care Rates
30. Establish OCS Non
31. Establish Day Care Centers
32. Set Day Care Rates
33. Establish Residential Facilities
34. Establish Private Child Placing Agencies
35. Set Rates for Residential Facilities
36. Establish Other Residential Facilities
37. Establish Other Residential Facilities
38. Establish Other Residential Facilities
39. Establish Contract
40. Establish Vendors
41. Establish Accelerated Vendors
42. Maintain Budget
43. Track and Report on Expenditures
44. Determine Eligibility
45. Maintain Parental Contributions
46. Maintain Federal Benefits
47. Collect Random Moment Sampling
48. Maintain Trust Funds
49. Process 31% Withholding
50. Process Liens and Levies
51. Process Automatic Payments
52. Process Semi
53. Process Manual Payments
54. Process Expedited Payments
55. Process Payment Adjustments
56. Process ISIS Payments
57. Establish Worker
58. Establish Case Assignment
59. Establish Provider Assignment
60. Create Ticklers
61. Create Automated Messages
62. Perform Approvals
63. Update Help, Policy and Procedures
64. Record Meetings
65. Archive Records
66. Expunge and Purge Records
67. Merge and Delete Persons
68. Access Network
69. Create Security Profile
70. Create External User Security Profile
71. Execute Search
72. Run Scheduled Reports
73. Create Requested Reports
74. Request Ad Hoc Reports
75. Manage Automation
76. Access Resource Directory
77. Conduct Quality Assurance Measures

5.2 Worker Types from the Actor/Role Models in the SRD

1. Attorney
2. Adoptee Counselor
3. Adoption Worker
4. Adoption Petition Worker
5. Adoption Subsidy Program Manager
6. Adoption Subsidy Program Worker
7. Adoption Supervisor
8. Alerter
9. Assessment Supervisor
10. Assessment Worker
11. Ad Hoc Report Worker
12. Security Worker
13. Case Worker Assistant
14. CFMS ISIS
15. Contract Accountant
16. Contract Monitor
17. Day Care Center
18. Director of Field Services
19. District Supervisor
20. DSS Contract Review Worker
21. DSS Cost Allocation Manager
22. DSS Office Worker
23. DSS OMF
24. DSS OMF Contract Accountant
25. DSS OMF Payment Management Accountant
26. Eligibility Specialist
27. Eligibility Program Manager
28. External User
29. Family Services Worker
30. Family Services Supervisor
31. Federal Benefits Worker
32. Field District Supervisor
33. Field Office Contract Section Worker
34. Field Service Liaison Section Worker
35. Field Supervisor
36. Field Worker
37. Foster Care Worker
38. Foster Care Supervisor
39. Foster Home
40. HR ISIS
41. ICPC Clerical Worker
42. ICPC Worker
43. ICPC Supervisor
44. Intake Worker
45. Intake Supervisor
46. Investigation (CPI) Worker
47. Investigation (CPI) Supervisor
48. Observer
49. OCS Budget Manager
50. OCS Fiscal Worker
51. OCS Supervisor
52. OCS Worker
53. OMF Worker
54. OMF Fiscal Worker
55. OMF Supervisor
56. Parental Contributions Worker
57. Parish Manager
58. Parish Office Worker
59. Private Agency
60. Private Provider
61. Procedures Staff
62. Program Monitor
63. Program QA Contract Monitor
64. Provider
65. Regional Administrator
66. Regional Contract Recruiter
67. Regional District Supervisor
68. Regional Home Development District Supervisor
69. Regional Home Development Supervisor
70. Regional Home Development Worker
71. Regional Liaison Worker
72. Regional Office Worker
73. Regional Placement Specialist Regional Program Specialist
74. Regional QA Reviewer
75. Regional QA Supervisor
76. Regional Training Coordinator
77. Regional RMS Coordinator
78. RMS Alerter
79. Sampled Worker
80. Scheduler
81. Service Provider
82. State Home Development Section Administrator
83. State Human Resource Division
84. State Office Adoption Subsidy Program Manager
85. State Office Budget Section Worker
86. State Office Contract Section Worker
87. State Office Investigation (CPI) Program Worker
88. State Office Program Staff/Division Director
89. State Office Worker
90. State Office Training Section Worker
91. State Office YAP Coordinator
92. State Care and Quality Assurance Division Worker
93. Statewide RMS Coordinator
94. VARR Supervisor
95. VARR Worker
96. Vendor

5.3 Statistical Reports List

The following reports were used to provide row count and other statistical information about other OCS systems that will be absorbed into the LAKIDS application.

5.3.1 TIPS Reports

Report Name
Special Reports from TIPS Data Warehouse
TIPS Number of Records per File
Staff Resource Need and Availability Report
Assistant Secretary Report
Children Open in FC Last Day of Year

5.4 OCS Office Location User Counts by Region

The chart displays users counts for the OCS categories of worker within offices and within a region. The individual offices within the region have not been identified and were not needed to perform the analysis. In looking at the office populations, most offices have fifty or fewer workers with eight of the sixty having more than fifty.

Region / Parish	ASP Regional Manager	ASP Asst. Regional Manager	ASP District Supervisor	ASP Regional Program Specialist	ASP Training Coordinator	FFLS Supervisor	FCW Home Developer	FCW Adoption Worker	ASP Quality Assurance	ASP Clerical	ASP Eligibility	ASP Attorney	FCW Child Protection Worker	FCW Foster Care Worker	FCW Family Service Worker	Office Total
Cov	1		2	1	1	4	6	6	3	9	4	1		3		41
Livingston						2				6			5	8	2	23
St.Tam			2			7				15			9	23	5	61
Tangi			1	1		3				8			5	10	2	30
Wash						3				7			3	13	2	28
Alex	1		2	2	1	3	5	5	3	6	2	1		1		32
Avoys						2				3			2	4	1	12
Cataho			1			2				4			2	5	1	15
Concor						1				3			1	3	1	9
Grant						1				2			2	3	1	9
Rapides						8				17			10	26	2	63
Vernon			1			3	1			8			5	9	1	28
Winn						1				2			1	2	1	7
BR	1	1	3	2	1	4	7	7	5	13	4	2		3		53
EBR			2			12				29			24	25	5	97
Asc						2				4			3	4	1	14
E/W Fel						1				3			1	3	1	9
Iberv						1				3			1	5	1	11
Pt. Coup						1				4			2	1	1	9
Laf	1		3	2	1	4	6	10	1	9	4	1		1		43
Acadia			1			3			1	7			2	6	2	22
Evang						1				3			1	2	1	8
Iberia						2			1	6			4	6	2	21
Laf			2			5				10			7	14	3	41
St Land			1			4	2		1	11			4	11	2	36
St Mart						2				5			2	7	1	17
St. Mary						2				6			3	5	1	17
Vermi						2				4			2	6	1	15
NO	1		2	2	1	7	7	14	5	16	6			3		64

Region / Parish	ASP Regional Manager	ASP Asst. Regional Manager	ASP District Supervisor	ASP Regional Program Specialist	ASP Training Coordinator	FFLS Supervisor	FCW Home Developer	FCW Adoption Worker	ASP Quality Assurance	ASP Clerical	ASP Eligibility	ASP Attorney	FCW Child Protection Worker	FCW Foster Care Worker	FCW Family Service Worker	Office Total
Orleans		2	6			21				66			40	58	12	205
Thib	1		1	2	1	3	4	5	3	6	3	1		1		31
Lafou			1			4				10			6	8	4	33
St. John			1			3	2			7			4	8	2	27
Terrb			1			4				10			5	10	4	34
SHR	1		4	2	1	5	8	9	4	13	4			3		54
Bossier						2				6			4	6	2	20
Caddo			2			9				18		3	13	31	3	79
Desoto						2				5			2	6	1	16
Nat						2				4			3	5	2	16
Sabine						1				3			1	4	1	10
Webster						3				6			4	12	2	27
JEF	1		3	2	1	4	7	10	3	12	4			1		48
E. Jeff			1			6				12			9	12	3	43
W. Jeff			2			10				26			16	25	7	86
Plaq						1				3			2	5	1	12
St. Bern						2				5			3	6	2	18
LK Char	1		3	2	1	3	4	4	2	8	2	1				31
Allen						1				3			1	2	1	8
Beau						2				4			2	4	1	13
Calca						5				11			10	17	3	46
Jeff Davis						1				3			1	2	1	8
Monroe	1		3	2	1	4	6	3	2	10	2	1		2		37
E. Carro						1				3			1	3	1	9
Frank						1				3			1	2	1	8
Linc						2				3			2	5	1	13
Madi						1		1		3			1	1		7
Moreh						1				3			1	2	1	8
Ouachita			1			7				16			12	19	6	61
Rich						1				2			1	2	1	7
Tensas										1				1	1	3
Union						1				2			1	1	1	6
W. Carro										2				1		3
Totals	10	3	52	20	10	206	65	74	34	512	35	11	247	477	106	1862

5.5 State of Illinois Production Hardware Recommendation

6 Requirements Addressed

75	124	149	169	196
318	327	328		

7 Revision History

As updates are made to the Resource Requirements Deliverable, a record is inserted into the table to track changes. This table provides a revision history for the Document.

The "Description of Updates" column should contain the page number of the change and the reason for the change. The name of the person who made the change should be entered into the "Updated By" column.

Approval Date	Approved By	Description of Updates	Updated By